Install Manual

ISLE SYSTEM VUE

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Printed: May 2009

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1 ISLE System VUE Installation

Introduction

The ISLE System VUE is installed on the head node of the cluster. The installation includes the ISLE System VUE application and supporting third-party applications. The main items installed include:

- ISLE System VUE web application
- ISLE Services
- JBoss application server
- Java Development Kit
- PostgreSQL Database
- LDAP server

1.1 ISLE System VUE Requirements

The following lists the hardware and software requirements for running the ISLE System VUE on a cluster. Ensure that these requirements are met before beginning the ISLE System VUE installation process.

Hardware requirements for the cluster:

- Head node: x86_64 processor

Software requirements for the cluster:

- SUSE Linux Enterprise Server 10.x (SLES 10.x) or Redhat Enterprise Linux 5.x (RHEL 5.x)
- ISLE Cluster Manager 2.0 (required for aggregating alerts from ISLE Cluster Manager)
- DMF Server must be running on the ISLE Master Host or on another server (required for aggregating alerts from DMF)
- The CXFS Server should be set up to forward syslog messages to port 14900 on the ISLE Master host (required for aggregating alerts from CXFS)
- A local or remote lightweight directory access protocol (LDAP) server must be available for user authentication
- The head node must have the following distribution packages installed: MySQL, Ant, PyXML, Python, and OpenSSL

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Web browser requirements for users:

- Firefox 2.0.4 (or later)
- Safari 3.0.4 (or later)
- Microsoft Internet Explorer 6 or 7

ISLE System VUE functionality in other browsers or browser versions is not guaranteed.

1.2 Installation

Installation is performed from a directory containing installation materials. These installation materials may be on a DVD or downloaded from the SGI web site.

Perform the installation in the order described since later steps depend on prior steps.

Follow the installation instructions using the directory names, user names, and passwords supplied. Failure to do so can result in malfunction of one or more components.

Unless otherwise specified, perform all operations as **root user**.

1.2.1 Java Development Kit

The Java Development Kit (JDK) is a set of java tools used by the ISLE User Portal and some of the third-party applications employed by the ISLE System VUE.

The ISLE System VUE requires that JDK version 1.5.0_12 be installed in `/usr/java`. Check to see if this version is installed using the following commands:

```
# rpm --query jdk
jdk-1.5.0_12-fcs
# ls -l /usr/java
total 12
drwxr-xr-x   3 root root 4096 Oct 31 15:23 .
drwxr-xr-x 16 root  root 4096 Oct 27 00:00 ..
drwxr-xr-x   9 root root 4096 Oct 31 15:23 jdk1.5.0_12
lrwxrwxrwx   1 root root   11 Oct 31 15:00 default -> jdk1.5.0_12
```

To install the JDK version 1.5.0_12, log in as **root user**, and from the directory containing the ISLE System VUE RPM(s), enter the following command:

```
# rpm -ivh jdk-1_5_0_12-linux-amd64.rpm
```

Agree to the license agreement when prompted.

Create a symbolic link called "`default`" in `/usr/java` using the following command:

```
# ln -s jdk1.5.0_12 default
```

1.2.2 PostgreSQL Database server

To install the PostgreSQL Database server, log in as **root user**, and from the directory containing the ISLE System VUE RPM(s), enter the following commands:

```
# rpm –ivh postgresql_jwx-<version>.sgi.x86_64.rpm
# /etc/init./postgres start
```

1.2.3 LDAP Server

The ISLE System VUE uses LDAP to authorize and authenticate users. Your LDAP server must have a “Roles” Organizational Unit (OU) defined, and the users who will be using the ISLE System VUE should

belong to the role of “Administrator”, “User”, or both.

If you are using an already configured remote LDAP server, please skip to the next section, "JBoss". The following instructions will allow you to create a local LDAP server. For troubleshooting or more information about LDAP, see http://openldap.org.

Install Packages

From your Linux distribution DVD or software repository, install the following packages:

- openldap2
- openldap2-client
- nss_dap
- pam_ldap

Edit the Configuration File

Edit the OpenLDAP daemon `slapd.conf` configuration file, which is typically located in the `/etc/openldap` or `/etc/ldap directory` (depending upon your Linux distribution). The following is an example of example of a `slapd.conf` file, with comments removed.

```
include     /etc/openldap/schema/core.schema
include     /etc/openldap/schema/cosine.schema
include     /etc/openldap/schema/inetorgperson.schema
include     /etc/openldap/schema/nis.schema

loglevel    256
pidfile     /var/run/slapd/slapd.pid
argsfile    /var/run/slapd/slapd.args

TLSCipherSuite  HIGH
TLSCertificateFile /etc/openldap/ssl/ldapserver.cert TLSCertificateKeyFile
/etc/openldap/ssl/ldapserver.key

access to attrs=userPassword,shadowLastChange
        by dn="cn=Manager,dc=foo,dc=bar,dc=com" write
        by anonymous auth
        by self write
        by * none

access to dn.base="" by * read

access to dn.base="cn=Subschema" by * read

access to *
        by dn="cn=Manager,dc=foo,dc=bar,dc=com" write
        by * read

database    hdb
suffix      "dc=foo,dc=bar,dc=com"
checkpoint  32  30 # <kbyte> <min>
rootdn      "cn=Manager,dc=foo,dc=bar,dc=com"
rootpw      {SSHA}sni2KYBnOaIyT4bJ1We5PUbr/5QPyjSk
directory   /var/lib/openldap-data
index       objectClass     eq
index       cn,sn,mail      eq,sub
index       departmentNumber    eq
```

Change the LDAP administrative password, as follows:

- Run the `slappasswd` command. Enter the desired administrative password for `ldap`. It will return a hashed password, such as `{SSHA}6/Sd1n6wGTgTzk2zujyOaJJnWr/KTjoa`.
- Add this to the `slapd.conf` file for the `rootpw` value

Install a Self-signed SSL Certificate

LDAP needs a Secure Sockets Layer (SSL) Certificate installed (unless you choose not to use to turn off TLS/SSL, which is not recommended.) If you need to use a self-signed certificate, you can run the following commands to create the key and certificate:

```
# mkdir /etc/openldap/ssl
# cd /etc/openldap/ssl
# openssl req -new -x509 -nodes -out ldapserver.cert -keyout ldapserver.key
```

Next, a basic structure for the LDAP database is needed. The code example below is a good starting point for a blank database. It provides the following:

- Creates a top level entry for a server "`foo.bar.com`", whose organizational unit is "`Foo Bar Widgets Emporium`"
- Creates a "`Group`" entry
- Creates a group named "`users`" underneath Group, with a GID of 100 and a user named "`fbarr`" as a member of "`users`"
- Creates a "`People`" entry
- Adds a user named "`fbar`" to "`People`", with UID 1012, and GID of 100
- Creates a "`Roles`" entry
- Adds the roles "`Administrator`" and "`User`" - each having the user "`fbarr`" as a member.

```
dn: dc=foo,dc=bar,dc=com
dc: foo
objectClass: dcObject
objectClass: organizationalUnit
ou: Foo Bar Widgets Emporium
structuralObjectClass: organizationalUnit

dn: ou=Group,dc=foo,dc=bar,dc=com
ou: Group
objectClass: organizationalUnit
entryUUID: a9e43208-96e7-102c-91ff-f7ec5e060c07

dn: cn=users,ou=Group,dc=foo,dc=bar,dc=com
objectClass: posixGroup
objectClass: top
cn: users
gidNumber: 100
memberUid: fbarr
structuralObjectClass: posixGroup

dn: ou=People,dc=foo,dc=bar,dc=com
ou: People
objectClass: organizationalUnit
structuralObjectClass: organizationalUnit

dn: uid=fbarr,ou=People,dc=foo,dc=bar,dc=com
uid: fbarr
cn: Foux Barr
```

```
sn: Barr
objectClass: inetOrgPerson
objectClass: posixAccount
objectClass: shadowAccount
loginShell: /bin/bash
uidNumber: 1012
gidNumber: 100
homeDirectory: /home/fbarr
gecos: Foux Barr
structuralObjectClass: inetOrgPerson
userPassword::secret

dn: ou=Roles,dc=foo,dc=bar,dc=com
objectClass: organizationalUnit
ou: Roles
structuralObjectClass: organizationalUnit

dn: cn=admin,ou=Roles,dc=foo,dc=bar,dc=com
cn: admin
objectClass: top
objectClass: groupOfUniqueNames
uniqueMember: uid=fbarr,ou=People,dc=foo,dc=bar,dc=com
structuralObjectClass: groupOfUniqueNames

dn: cn=user,ou=Roles,dc=foo,dc=bar,dc=com
cn: user
objectClass: top
objectClass: groupOfUniqueNames
structuralObjectClass: groupOfUniqueNames
uniqueMember: cn=users,ou=Group,dc=foo,dc=bar,dc=com
uniqueMember: uid=fbarr,ou=People,dc=foo,dc=bar,dc=com
```

To import the LDIF file to your LDAP server, you must meet the following conditions:

- No pre-existing LDAP database.
- The `slapd` daemon must not be active.

Now perform the following steps:

1. As **root user**, execute the following:

   # **slapadd -v -l /path/to/ldif**

You should see output verifying that the various entries are added.

2. Start up the `slapd` daemon. This is usually done by performing either of the following commands:

   # **/etc/init.d/ldap start**

   # **/etc/init.d/slapd start**

3. To verify that LDAP is working, perform the following command:

   # **ldapsearch -x -b “dc=foo,dc=bar,dc=com” “objectclass=*”**

4. Enable the LDAP server to run when the server starts up. This is usually done by performing either one of the following commands:

```
# chkconfig --add ldap

# chkconfig --add slapd
```

The LDAP database has now been added.

Login Authentication Using LDAP

In order for jobs to run on the ISLE System VUE properly, the same user you use to log in to the ISLE System VUE should be accessible from Linux also. To do this perform the following:

1. Use YAST to configure Linux to log on using LDAP. Open YAST, go to Network Services, LDAP Client. Enable logins and populate the server name/address and LDAP Base DN

(for example, `dc=foo,dc=bar,dc=com`)

2. Open `/etc/nsswitch.conf` and make sure that LDAP lookup is enabled. For example:

```
passwd: files ldap
shadow: files ldap
group:  files ldap
```

For more information about LDAP or for troubleshooting information, please see http://www.openldap.org or consult other LDAP documentation.

1.2.4 Install the License

To install the SGI LK Java bindings, log in as **root user**, and from the directory containing the ISLE User Portal RPM(s), enter the following command:

```
# rpm –ivh lkSGI-java-<version>.x86_64.rpm
```

You will need to obtain a license from SGI. For information on the SGI LK licensing mechanism, see the *SGI Foundation 1 Service Pack 3 Start Here* available at http://docs.sgi.com

Open the `/etc/lk/keys.dat` file in a text editor. Copy and paste the license string, exactly as given, and save the file.

1.2.5 JBoss

JBoss is the application server for the ISLE System VUE. Perform the following steps to install it on your system:

1. To install jboss, log in as **root user**, and from the directory containing the ISLE System VUE RPM(s), enter the following commands:

```
# rpm –ivh jboss-<version>.sgi.x86_64.rpm
# rpm –ivh jbossws-<version>.sgi.x86_64.rpm
```

2. Set up LDAP to log in using `jboss`. To do this, edit `/opt/jboss/server/default/conf/login_config.xml` and set up the Base DN, Roles DN, and authentication information for your LDAP server Base under the "sgi_security" section.

NOTE: `jboss` has a session timeout value which controls how soon the web session times out after periods of inactivity. You can change the "`session-timeout`"

value in `/opt/jboss/server/default/deploy/jbossweb-tomcat55.sar/conf/web.xml`.

Example:

```
<application-policy name="isle_security">
    <authentication>
      <login-module code="org.jboss.security.ClientLoginModule" flag="required">
         <!-- Any existing security context will be restored on logout -->
         <module-option name="restore-login-identity">true</module-option>
      </login-module>
      <login-module code="org.jboss.security.auth.spi.LdapLoginModule" flag="required">
         <module-option name="java.naming.factory.initial">com.sun.jndi.ldap.LdapCtxFactory</module-option>
         <module-option name="java.naming.provider.url">ldap://foo.bar.com:389</module-option>
         <module-option name="java.naming.security.principal">cn=Manager,dc=foo,dc=bar,dc=com</module-option>
         <module-option name="java.naming.security.credentials">secret</module-option>
         <module-option name="java.naming.security.authentication">simple</module-option>
         <module-option name="principalDNPrefix">uid=</module-option>
         <module-option name="principalDNSuffix">,ou=People,dc=foo,dc=bar,dc=com</module-option>
         <module-option name="rolesCtxDN">ou=Roles,dc=foo,dc=bar,dc=com</module-option>
         <module-option name="uidAttributeID">uniqueMember</module-option>
         <module-option name="matchOnUserDN">true</module-option>
         <module-option name="roleAttributeID">cn</module-option>
         <module-option name="roleAttributeIsDN">false</module-option>
      </login-module>
    </authentication>
  </application-policy>
```

Note: If you are also using ISLE User Portal, you can use the `portalcfg` tool to set this up for you.

3. Start JBoss using the following command:

```
# /etc/init.d/jboss start
```

Verify JBoss operation by entering URL "https://hostname:8443". The ISLE System VUE login page will appear.

1.2.6 ISLE Framework

Note: ISLE Framework is installed on the ISLE Master Host and on the DMF Host only.

To install and activate the ISLE Framework, log in as **root** user, and from the directory containing the ISLE RPM(s), enter the following commands:

```
# rpm –ivh b46-<version>.sgi.x86_64.rpm
# rpm -ivh db46-utils-<version>.sgi.x86_64.rpm
# rpm -ivh proguard-<version>.sgi.noarch.rpm
# rpm -ivh protobuf-<version>.sgi.x86_64.rpm
# rpm -ivh mysql++-<version>.sgi.x86_64.rpm
# rpm -ivh jgoodies-forms-<version>.x86_64.rpm
# rpm -ivh jgoodies-looks-<version>.x86_64.rpm
# rpm -ivh ice-<version>.sgi.x86_64.rpm
# rpm -ivh isle-services-<version>.sgi.x86_64.rpm
```

Install the ISLE Framework on the ISLE Master Host and on the DMF Server, if applicable.

1.2.7 ISLE System VUE

Note: ISLE System VUE is installed on the ISLE master host only.
To install ISLE System VUE, log in as **root user**, and from the directory containing the ISLE RPM(s), enter the following command:

```
# rpm –ivh systemvue-<version>.sgi.x86_64.rpm
```

1.3 Configure the ISLE System VUE

This section describes how to configure the ISLE System VUE and covers the following topics:

1.3.1 Configure ISLE Services on Head Node

NOTE: You can run the `nevesetup` script as many times as you want on the DMF Server. Be aware that it will overwrite the `neve_config.xml` file. If you rerun `nevesetup`, always run `neveconfig` and restart the services. Manually editing `neveconfig`.xml is strongly discouraged.

1. Log in as the **root** user and run the following commands:

```
#. /etc/profile.d/isle.sh
# nevesetup
```

The `nevesetup` command will walk you through a set of questions. On the head node, the questions are, as follows:

```
Is this host the Isle Master node? (y/n): y
Tell us about your environment:
How many racks are in your cluster? (1-n):

Isle requires access to a MySQL database.
Please supply the username and password of the MySQL administrator:
user name:
password:

Tell us about your applications:
Isle 2.0 has the option to aggregate alerts and alarms from other
applications.
Are you using the Isle Cluster Manager? (y/n):
Enter the host name where one ICM client resides (or return if you don't
know):
Are you running DMF? (y/n):
Is the DMF server running on this host? (y/n):
Enter the host name of the DMF server (or return if you don't know):
Enter the URL of the DMFMan UI (or return if you don't know):
Are you running CXFS? (y/n):
Enter the URL of the CXFS UI (or return if you don't know):
```

2. After the `nevesetup` script has been completed, enter the following command:

```
# neveconfig
```

NOTE: If you are going to be installing ISLE on a DMF Server, you must copy the certificates from `$ISLE_HOME/neve/admin/certs` to the DMF Server.
For example, `rsync -aP $ISLE_HOME/neve/admin/certs <host name of dmf server>:$ISLE_HOME/neve/admin/`

3. Configure the `nodes.txt` file.

Edit `$ISLE_HOME/neve/admin/config/nodes.txt` to reflect the `rackid`, `iruid` (if applicable) and `boardid` of each node.

For example:

```
node=55723000034
hostname=n008
pimage=suse10.2
rackid=1
iruid=1
boardid=8
os=Suse
logicalattribute=x86_64
nodetype=NodeTypeCompute
nodepower=NodePowerOn
nodemode=NodeModeUp
nodeoperation=NodeOpBoot
nodesched=NodeSchedOnline
description=Node n008 X86_64 Suse 10.2
add=placeholder
```

1.3.2 Configure ISLE Services on DMF Server

This section describes how to configure ISLE services on the DMF server.

Log in as the **root** user and run the following commands:

```
#. /etc/profile.d/isle.sh
# nevesetup
```

When you run `nevesetup`, the main questions will be:

```
Is this host the ISLE Master node? (y/n): n
Is this host tha DMF Server host? (y/n): y
Enter host name of the ISLE Master node:
```

After the `nevesetup` script has been completed, enter the following command:

```
# neveconfig
```

1.3.3 Start ISLE Services

This section describes how to start ISLE services.

As **root** user, start the services by running the following command:

```
# /etc/init.d/neve start
```

It will start the following:

- The ZeroC ICE framework
- The Isle components' servers

If you are running DMF, run the startup script on the head node first and then on the host where the DMF server is located.

Once you have started the neve service on the ISLE Master host, verify the operation of ISLE System VUE by loading URL https://hostname:8443/isleportal_systemvue.

You can now log in to the ISLE System VUE using the accounts established in the LDAP server.

1.3.4 Controlling ISLE Components

The `neveserver` utility allows you to get the status of the ISLE components and to control each component server, individually. The utility, generated by `neveconfig`, is located in `$ISLEHOME/neve/bin` on the head node of your cluster.

Status

`neveserver` list will display the status of all configured component servers, as follows:

```
> neveserver list
Id:1 Name: HeadnodeHalHalServer1 State: active (pid = 11681, enabled)
Id:2 Name: HeadnodeHalHalalarmServer1 State: active (pid = 11723, enabled)
Id:3 Name: HeadnodeRtAggregateServer1 State: active (pid = 11753, enabled)
:
Id:7 Name: DmfnodeDmfDmfServer1 State: active (pid = 11895, enabled)
```

Starting a server

`neveserver start <Id | name>` will start a server. You can specify either the server Id or the server name as displayed in `neveserver list`, as follows:

```
> neveserver start 1
> neveserver start HeadnodeHalHalalarmServer1
```

Stopping a server

`neveserve stop <Id | name>` will perform a clean shutdown of a server. You can specify either the server Id or the server name as displayed in `neveserver list`, as follows:

```
> neveserver stop 1
> neveserver stop HeadnodeHalHalalarmServer1
```

`neveserve shutdown <Id | name>` will perform an immediate shutdown of a server, as follows:

```
> neveserver shutdown 1
```

2 Uninstall the ISLE System VUE

Perform the following commands, to stop the ISLE System VUE services:

```
# /etc/init.d/neve stop
# /etc/init.d/jboss stop
# /etc/init.d/postgres stop
```

Uninstall the ISLE components by using the following commands:

```
# rpm -e systemvue
# rpm -e isle-services
# rpm -e ice
# rpm -e jbossws
# rpm -e jboss
# rpm -e postgresql_jwx
```

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